REMARKS

The Applicants are in receipt of the Final Office Action of June 22, 2009, and after careful study of this Office Action have the following comments.

*Interview Summary*

Applicants wish to make of record the summary of a telephonic interview conducted upon Applicants' request by the U.S. Patent and Trademark Office on August 11, 2009 at 2:00 PM E.D.T. in relation with this Office Action. Applicants thank the Examiner for his courtesy in granting the requested interview.

The participants of the interview were:
Examiner Anthony Bartosik
Examiner Richard Chilcot
Carlos A Fisher (Attorney of Record)
Jayasree Vasudevan (Patent Agent)

During the interview, Applicants discussed primarily the claim objections. In particular, amendments to overcome the Examiner's objection to a lack of positive recitation of the element "payload" in claims 1, 7, and 10 were discussed. An amendment to overcome the Examiner's objection to "second structures" in claim 7 was also discussed. There was also a brief discussion to determine whether common ground could be found with the Examiner for claim language defining patentable subject matter.

*Amendments to the Claims*

Without conceding the correctness of the Examiner's rejections, and in order to facilitate obtaining early allowance of the above-identified application, certain of the claims have been amended. Applicants expressly reserve the right to seek patent protection for the original claims and any other claims supported by the above-identified application in one or more related applications.

Specifically, Claim 1 has been amended to recite "an isolation platform comprising: an upper plate upon which a payload comprising equipment to be supported is placed." Support for this amendment can be found, for example, in the Summary of the Invention, on page 3, lines 20-28 of the present application as filed; and the abstract of the present application.

Claims 7 and 10 have been amended to recite "an apparatus comprising an isolation platform and a payload comprising equipment to be supported thereupon". Support for these amendments can be found, for example, in the Summary of Invention, on page 3, lines 20-28 of the present application as filed; and the Abstract of the present application.

Claims 5 and 6 have been canceled.

New Claims 12-26 have been added and are directed to embodiments for which patent protection is sought. New Claims 12-20 are supported by the present specification, for example, on page 3, lines 11-14.

New independent Claim 21 is supported by the present

specification, for example, by Fig. 4; Fig. 10; on page 3, lines 29-32; on page 6, lines 9-19; on page 7 lines 23-31; and on page 8, lines 6-14.

New Claim 22 is supported by the present specification, for example, by Fig. 4 and Fig. 10.

New Claim 23 is supported by the present specification, for example, on page 8, lines 23-27.

New Claim 24 is supported by the present specification, for example, in the Summary of Invention, on page 3, lines 20-28.

New Claim 25 is supported by the present specification, for example, by present claim 8; and on page 6, lines 10-12.

New Claim 26 is supported by the present specification, for example, by present claim 9; and on page 6, lines 10-12.

In addition, Claim 1 has been amended to recite "structured so that, in response to an external vibration, said lower plates are displaced laterally with respect to said upper plates such that the spherical balls therebetween roll about their respective bearing surfaces and are raised to higher elevations, the platform further comprising". Support for this amendment can be found in the present specification, for example, on page 3, lines 29-32.

Claim 7 has been similarly amended to recite "structured so that in response to an external vibration, the plates of the first structure are displaced laterally with respect to the plates of the second structure such that the rigid balls therebetween roll about

their respective bearing surfaces and are raised to higher elevations". Support for this amendment can be found in the present specification, for example, on page 3, lines 29-32.

Likewise, Claim 10 has been amended to recite "structured so that in response to an external vibration, the plates of the first open pan structure are displaced laterally with respect to the plates of the second open pan structure such that the rigid balls therebetween roll about their respective bearing surfaces and are raised to higher elevations". Support for this amendment can be found in the present specification, for example, on page 3, lines 29-32.

Claim 7 has been amended to recite "said first structure and said second structure" instead of said first and second structures, for clarity.

Applicants submit that all the new claims and claim amendments presented herein are all supported by the present specification and do not present any new matter.

*Specification*

The Examiner has objected to the amendment in the specification setting forth filler material "100", the amendment to Claims 5 and 6 that included the word "solid" and the depiction of filler material in Fig. 4. The Examiner has objected to these amendments as allegedly introducing new matter into the disclosure. Applicants disagree with the Examiner that the mere addition of reference numerals "100" to matter that is adequately disclosed in the specification (on page 8)

constitutes new matter. However, without conceding the correctness of the Examiner's objections, the specification has been amended to delete reference numeral "100" in the specification for the filler material and claims 5 and 6 have been cancelled. Therefore, the objection to these amendments is moot and Applicants respectfully request withdrawal of this objection.

In addition, the specification has been amended to describe the new figure, namely, Fig. 10, as described above. The amendment to the specification is supported by the present application as filed, for example, by Fig. 4; on page 3, lines 29-32; on page 6, lines 9-19; on page 7 lines 23-31; and on page 8, lines 6-14.

*Drawings*

The Examiner has indicated that the drawings are objected to for failing to show the upper and lower interstitial regions filled with filler (claims 5-6).

Without conceding the correctness of the Examiner's objections, Applicants herewith are submitting amended Fig. 4 where reference numerals related to a filler material "100" have been removed. In addition, as noted above, claims 5 and 6 have been cancelled.

New Fig. 10 has been added to describe an embodiment of the present invention. The figure is supported in the specification, for example, by Fig. 4; on page 3, lines 29-32;

on page 6, lines 9-19; on page 7 lines 23-31; and on page 8, lines 6-14.

For the reasons discussed above, along with the drawing, specification and claim amendments provided herein, none of which adds any new matter to the specification, Applicants believe they have addressed and met all of the Examiner's objections to the specification and drawings.

*Objection to Claims*

Claims 1, 7 and 10 have been objected to for allegedly not clearly setting forth the limitation in regards to the payload. Claim 1, has been amended to recite "an isolation platform comprising: an upper plate upon which a payload comprising equipment to be supported is placed". Claims 7 and 10 have been amended to recite "an apparatus comprising an isolation platform and a payload comprising equipment to be supported thereupon". Applicant respectfully submits that this objection is moot in light of the current amendments.

Claim 7 has been objected to for lack of sufficient antecedent basis for the limitation "second structures". Applicant respectfully submits that this objection is moot in light of the current amendment reciting "said first structure and said second structure" instead of "said first and second structures".

*Rejection of Claims Pursuant to 35 U.S.C. §103*

The Examiner has rejected claims 1-7 and 9-11 under 35

U.S.C. 103 (a) over U.S. Patent No. 4,917,211 (hereinafter Yamada et al.) in view of U.S. Patent No. 6,123,313 (hereinafter Otsuka et al.) and U.S. Patent No. 5,599,106 (hereinafter Kemeny) for obviousness. Applicants respectfully, but vigorously disagree for the following reasons.

Yamada et al. discloses a seismic isolator comprising a friction device having an upper friction plate and a lower friction plate, the friction planes having a characteristic of Coulomb friction, and horizontally placed springs which reduce a relative displacement and a residual displacement.

Otsuka et al. discloses a seismic isolation apparatus wherein a pair of seismic isolation mechanisms are formed each having a pair of upper and lower clamping members formed in the shape of a rectangular frame, wherein upper and lower guide surfaces are formed on the four sides of the upper and lower clamping members, and wherein rollers each having a circular cross section are respectively interposed between the upper and lower guide surfaces.

Kemeny discloses a seismic isolation bearing for structures consisting a steel ball sandwiched between two horizontal steel load plates.

The present invention as set forth in independent Claim 1, describes an isolation platform comprising an upper plate upon which a payload comprising equipment to be supported is placed, said upper plate having a plurality of downward-facing, conical, rigid bearing surfaces; a lower plate secured to a foundation, said foundation supporting the isolation platform and the

payload comprising equipment to be supported, said lower plate having a plurality of upward-facing, conical, rigid bearing surfaces disposed opposite said downward-facing, conical, rigid bearing surfaces, said downward and upward bearing surfaces defining a plurality of bearing cavities between said upper and lower plates; a plurality of rigid spherical balls interposed between said downward and upward bearing surfaces; structured so that in response to an external vibration, said lower plates are displaced laterally with respect to said upper plates such that the rigid spherical balls therebetween roll about their respective bearing surfaces and are raised to higher elevations.

The platform further comprises a retention mechanism securing said lower plate and said upper plate together that allows for lateral displacement in any direction between said upper and lower plates without separation of said upper and lower plates.

In addition, independent Claim 1 recites downward and upward bearing surfaces comprising central apices having the same curvature as that of said spherical balls, and having recess perimeters having the same curvature as that of said spherical balls, which connects said central apices and recess perimeters with continuous slope, wherein the curvature of said spherical balls and downward and upward bearing surfaces are further configured such that as said spherical balls and upper and lower plates displace laterally relative to one another, a restoring force is substantially constant.

Independent Claims 7 and 10 of the present invention recite that said first and said second structure as in Claim 7 or said

first and said second open pan structure as in Claim 10 are movably fastened together in a manner that reduces displacement in a horizontal plane of the first structure or open pan structure relative to said second structure or said second open pan structure. In addition, independent Claims 7 and 10 recite that the apparatus comprising an isolation platform and a payload comprising equipment to be supported thereupon is structured so that in response to an external vibration, the plates of the first structure (first open pan structure in Claim 10) are displaced laterally with respect to the plates of the second structure (second open pan structure in Claim 10) such that the rigid balls therebetween roll in any direction about their respective bearing surfaces and are raised to higher elevations.

Independent Claim 21 of the present invention recites that in response to an external vibration, the two or more first plate segments are displaced laterally with respect to the two or more second plate segments such that the rigid balls therebetween roll about their respective bearing surfaces, thereby raising the balls and/or bearing surfaces to a higher elevation.

Therefore, in independent Claims 1, 7, 10 and 21 of the present invention, multidirectional lateral displacement between upper and lower plates, or upper and lower structures or upper and lower open pan structures occurs. Notably, the upper and lower plates of independent Claim 1 have a plurality of conical, rigid bearing surfaces, the first and second structures of independent Claim 7 have plates having opposing conical bearing surface and the first and second open pan structures of claim 10

have plates having opposing conical bearing surfaces, with the rigid ball bearing between the upper and lower plates. In addition, the individual first and second plate segments in claim 21 define at least two recesses comprising a combination of radial and linear bearing surfaces.

In the recent United States Supreme Court case *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 82 U.S.P.Q.2d 1385 (2007), Justice Kennedy affirmed that *Graham v. John Deere*, 383 U.S. 1, 36 (1966) continues to set forth the proper analytical test for obviousness. Pursuant to *Graham*, in an obviousness analysis, "the scope and content of the prior art [at the priority date of the application in question] are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." 383 U.S. at 17, 148 U.S.P.Q. at 467. When "a person having ordinary skill in the prior art . . . would immediately see that the thing to do was what" the inventor did, the invention is obvious. *Graham*, 383 U.S. at 24, 148 U.S.P.Q. at 469 (emphasis added).

Yamada et al., discloses a ball joint 18, rather than a freely rolling ball. Yamada et al. does not disclose, teach or suggest the present invention. For example, Yamada et al. does not disclose, teach or suggest that the rigid spherical balls and upper and lower plates as in claim 1 displace laterally relative to one another. Yamada et al. does not disclose an isolation platform or an apparatus comprising an isolation platform and a payload comprising equipment to be supported

thereupon that is "structured so that in response to an external vibration, said lower plates are displaced laterally with respect to said upper plates such that the rigid spherical balls (or rigid balls in claims 7, 10 and 21) therebetween roll about their respective bearing surfaces and are raised to higher elevations", as recited in independent claims 1, 7, 10 and 21. The ball joint 18 in Yamada et al. does not displace laterally relative to the upper and lower plates as in claim 1 or roll about the respective bearing surfaces as in claims 1, 7, 10 and 21.

Typically, a ball joint is used in the medical context in a ball and socket (spheroid) joint, wherein the ball-shaped surface of one rounded member, such as the femur, fits into the cup-like depression of another member, such as the hip bone. (Source: http://en.wikipedia.org/wiki/Ball_and_socket_joint).

A ball and socket joint, in engineering, is a mechanical connection used between parts that must be allowed some relative angular motion in nearly all directions. The joint consists essentially of a spherical knob at the end of a shaft, with the knob fitting securely into a mating socket. Joints of this type are commonly used in mounting the front wheels of automobiles, allowing these wheels movement sufficient for steering. In this application they are usually called ball joints. (Source: http://www.infoplease.com/ce6/sci/A0805923.html). On the contrary, independent claims 1, 7, 10 and 21 of the present invention do not recite ball joints, but in actual fact recite rigid or spherical balls, such as ball bearings.

Moreover, the features alleged by the Examiner as being the rigid bearing surfaces, as depicted in the Examiner's rendition of Figure 1 of Yamada et al. on page 5 of the Office Action, by the Examiner's own admission on page 6 , last paragraph of the office action, while being allegedly of the shape currently claimed, are not specifically disclosed. More importantly, these surfaces do not displace laterally with respect to each other, as is required in independent claims 1, 7, 10 and 21 of the present invention. In Yamada et al., lateral or relative displacement, if any, is produced between the friction plates (see column 4, lines 3-6), and not between the location characterized by the Examiner in his modified Fig. 1 as "rigid bearing surfaces". In addition, a rolling friction could operate in combination with the Coulomb friction function of the upper plate 17 and lower plate 20 (see column 4, lines 45-52). Yamada et al. in actual fact, by disclosing a rolling contact of ball bearings (element 34 in Fig. 1 of Yamada et al.; fixed to a height adjuster) with at least one respective slide plate, which is notably flat and horizontal, as opposed to the bearing surfaces of the presently claimed invention that are either conical or a combination of radial and linear surfaces, teaches away from the present invention wherein the rolling of the rigid ball is between the conical bearing surfaces or bearing surfaces that are a combination of radial and linear surfaces and which requires the lateral displacement of the plates having the bearing surfaces, as in present claims 1, 7, 10 and 21.

In addition, in the present invention, as lateral forces (e.g. in the form of vibrations) are applied to the platform, the upper plate is displaced laterally with respect to the lower plate such that the balls therebetween roll about their

respective depressions and the balls are raised to higher elevations (see Summary of Invention, page 3, last paragraph). In Yamada et al., the objective is to provide a seismic isolator which not only reduces a response acceleration, transferred to structure of equipment therein, arising from an earthquake but also restrains a response displacement and a residual displacement under a desired value (see column 2, lines 21-26). Yamada et al. does not disclose, teach or suggest any raising of the ball joint to higher elevations in response to a sesmic vibration.

Furthermore, Yamada et al. does not disclose a retention mechanism (spring system 25) that secures said lower plate and said upper plate together as alleged by the Examiner. The Examiner, by his own admission, states that Yamada et al. does not have a lower plate, instead separate frame members that attach to a foundation (page 6, paragraph 2 of office action). In fact, spring system 25 in Yamada et al. lies between beam element 22 and the foundation or floor slab 11 (see column 4, lines 21-30) since pulley 29 is fixed to foundation or floor slab 11. Notably, the foundation or floor does not have a bearing surface. In contrast to Yamada et al. (see Fig. 1(b) in Yamada et al.), the present invention, does not secure the upper plate to the foundation or floor. Therefore Yamada et al. does not teach or suggest a retention mechanism that secures said lower plate and upper plate together and that allows for lateral displacement between said lower and upper plates without separation of said lower and upper plates.

The Examiner notes that Yamada et al. teaches a lower system that utilizes separate frame members that attach to a

foundation, contrary to the presently claimed lower plate of the present invention and alleges that Otsuka et al. cures this deficiency by teaching a frame system that includes an upper plate secured to a foundation (A2), said foundation supporting an isolation platform and a payload to be supported. Applicant respectfully traverses this rejection, for the reasons outlined below.

Otsuka et al. discloses that the pair of seismic isolation mechanisms are installed by being superposed on top of each other such that the rolling directions of the roller in the two seismic isolation mechanisms are perpendicular to each other (see abstract).

Notably, the movement of the rollers of Otsuka et al., in response to a seismic vibration, is along the X and Y axes, and therefore only bidirectional. On the contrary, in the present invention, the spherical ball bearings of the present invention are free to move in any direction.

Otsuka et al. does not disclose, teach or suggest the present invention. Specifically, Otsuka et al. discloses a seismic isolation apparatus structured with bidirectional roller guide surfaces, as opposed to the present invention with conical or a combination of radial and linear bearing surfaces.

Furthermore, Otsuka et al. teaches specific structures of upper and lower isolation mechanisms A1 and A2 that are identical, but are superposed in such a manner as to be perpendicular to each other (column 6, lines 55-59). One of ordinary skill in the art at the time of invention would not

have found it obvious to modify the seismic isolator of Yamada et al. to include a lower plate that mirrored the upper plate as taught in Otsuka. Otsuka et al., in actual fact, teaches away from using identical upper and lower plates that allow for lateral displacement relative to one another and from spherical bearings that "roll" mutidirectionally about their respective depressions and are raised to higher elevations in response to a seismic vibration.

In view of the above, neither Yamada et al. nor Otsuka et al. disclose, teach or suggest either the spherical bearings or the bearing surfaces of the present invention, or that there is lateral displacement of the plates with the bearing surfaces of the present invention, or that the balls therebetween roll about their respective depressions and are raised to higher elevations in response to a seismic vibration. Therefore the combination of Yamada et al and Otsuka et al does not disclose, teach or suggest the present invention. Therefore, there is no motivation for one of ordinary skill in the art to combine Yamada et al. and Otsuka et al. to derive the present invention.

The Examiner alleges that Kemeny cures the deficiency in the teachings of Yamada et al. and Otsuka et al. by disclosing the rigid bearing surface of the present invention. Applicants disagree for the following reasons.

As noted above, neither Yamada et al. nor Otsuka et al., either alone or in combination, disclose, teach or suggest the present invention as recited in independent claims 1,7,10 and 21 of the present invention. In particular, as noted above, Yamada

et al. not only does not disclose the rigid bearing surfaces of the present invention, but in actual fact teaches away from the present invention wherein the rolling of the rigid ball is between the conical bearing surfaces or bearing surfaces that are a combination of radial and linear surfaces and which requires the lateral displacement of the plates having the bearing surfaces, as in present claims 1, 7, 10 and 21. Yamada et al. discloses a rolling contact of ball bearings (element 34 in Fig. 1 of Yamada et al.; fixed to a height adjuster) with at least one respective slide plate, which is notably flat and horizontal, as opposed to the bearing surfaces of the presently claimed invention that are either conical or a combination of radial and linear surfaces. In addition, as noted above, Otsuka et al. does not disclose, teach or suggest the lower plate mirroring the upper plate, comprising the bearing surfaces of the present invention.

In view of the above, the combination of Yamada et al. and Otsuka et al. does not describe an invention where a curved bearing surface would be useful. Notably, the ball joint and seal in Yamada et al. are not bearing surfaces. Thus, the combination of Yamada et al. and Otsuka et al. does not call for the rigid bearing surface disclosed in Kemeny.

Therefore, neither Yamada et al. nor Otsuka et al., either by themselves or in combination, disclose, teach or suggest the present invention as recited in independent clams 1,7,10 and 21 of the present invention. There is also no motivation for a person of ordinary skill in the art to combine the teachings of Kemeny with Yamada et al. and Otsuka et al. Moreover, even if combined, these references would not yield the present

invention.

In sum, neither the combination of Yamada et al. and Otsuka et al. alone, or with the addition of Kemeny, disclose, teach or suggest the invention recited in present claims 1,7,10 and 21.

In view of the above, Applicants submit that the invention of independent claims 1, 7, 10 and 21 is not obvious, and meets the requirements of 35 U.S.C. 103(a). Applicants submit that the claims dependent therefrom, that further limit independent claims 1,7,10 and 21, are therefore also patentable. Applicants respectfully ask that the Examiner reconsider and withdrawn the present claim rejections.

Claim 8 was rejected under 35 U.S.C. 103(a) as being allegedly obvious over the combination of Yamada et al., Otsuka et al., Kemeny and U.S. Patent No. 5,716,037 (hereinafter Haak). Applicants respectfully traverse this rejection for the following reasons.

The Examiner, on Page 8 of the Office Action alleges that Haak teaches that it is known to fasten a payload to a seismic isolator.

Haak discloses a seismic isolator with bidirectional roller bearings and restoring means including elongated, non-flexible compression spring assemblies.

Haak does not disclose, teach, or suggest the present invention. In addition, as noted above, neither Yamada et al., nor Otsuka et al. nor Kemeny, either alone or in combination, disclose, teach or suggest the invention of independent claims

1,7,10 and 21. Haak not only does not disclose teach or suggest the invention, but also does not does not cure the deficiencies in these three references to derive the present invention recited in the independent claims 1,7,10 and 21. Even more so, the fact is that the combination of Yamada et al, Otsuka et al, Kemeny and Haak would not, at the filing date of the present application, have rendered the invention encompassed by dependent claim 8 obvious to a person of ordinary skill in the art in any way.

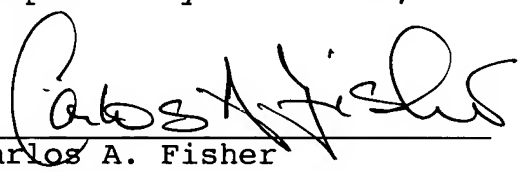
In view of the above, the Applicants submit that claim 8 meets the requirements of 35 U.S.C. 103(a) and request that the Examiner reconsider and withdraw the rejection.

## CONCLUSION

For the reasons provided above the Applicants submit that the claims are now in condition for allowance, and respectfully request that the Examiner issue a Notice to that effect. If any minor issues remain and it is thought that a telephone conference with the undersigned would expedite the resolution of these matters, the Examiner is invited to call the undersigned at any time.

A check for a one month extension of time is enclosed. If any further fee is due in connection with this response kindly use Deposit Account 21-0890 for the payment of such fee now due, or to credit any overpayment.

Respectfully submitted,



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